

P21760.A04

IN THE CLAIMS

Please cancel claims 1-28 without prejudice or disclaimer of the subject matter recited therein.

Please add the following new claims:

---

--29. An electric motor system, comprising:

at least a first electric motor comprising a first rotor;

the first rotor being mechanically coupled to an engine;

at least a second electric motor comprising a second rotor;

the second rotor being mechanically coupled to a mechanical aggregate; and

an electronic power system,

wherein the first electric motor and the second electrical motor are electrically coupled to one another via the electronic power system in order to exchange electric power at a freely selectable voltage level.

30. The electric motor system of claim 29, wherein at least one of the first and second motors is of a three-phase type.

31. The electric motor system of claim 29, wherein the first rotor is mechanically

P21760.A04

coupled to the engine via at least one rotating shaft.

B6  
out.

32. The electric motor system of claim 29, wherein the engine comprises an internal combustion engine.

33. The electric motor system of claim 32, wherein the first rotor is mechanically coupled to the internal combustion engine via at least one rotating shaft.

34. The electric motor system of claim 29, wherein the second rotor is mechanically coupled to the aggregate via a rotating part.

35. The electric motor system of claim 34, wherein the aggregate comprises at least one of a turbo-engine and a turbocharger.

36. The electric motor system of claim 29, wherein the aggregate comprises at least one of a turbo-engine and a turbocharger.

37. The electric motor system of claim 29, further comprising a gearbox, wherein the first electric motor is mechanically connected to the engine via the gearbox.

36  
ent . 38. The electric motor system of claim 29, wherein the first electric motor is at least one of integrated with the engine and integrated with a flywheel of the engine.

39. The electric motor system of claim 29, wherein the engine comprises a flywheel and wherein the first electric motor is structurally integrated with the flywheel.

40. The electric motor system of claim 29, wherein the first electric motor is connected to at least one of:

at least one external electric circuit, and  
a machine's mains.

41. The electric motor system of claim 29, further comprising a casing, wherein each of the first and second motors are mounted in the casing.

42. The electric motor system of claim 29, wherein at least one of the first and second electric motors is one of an asynchronous type motor, a synchronous type motor, and a reluctance type motor.

43. The electric motor system of claim 29, wherein an axis of the first rotor is aligned

P21760.A04

Be  
cont. with an axis of the second rotor, such that the first and second rotors of the first and second electric motors share a common axis of rotation.

44. The electric motor system of claim 29, wherein the first rotor comprises one of an inner rotor and an outer rotor.

45. The electrical motor system of claim 29, wherein the second rotor comprises one of an inner rotor and an outer rotor.

46. The electrical motor system of claim 29, wherein the first rotor comprises an inner rotor and the second rotor comprises an outer rotor, each rotating about a common axis.

47. The electrical motor system of claim 29, wherein the first rotor comprises an inner rotor and the second rotor comprises an outer rotor.

48. The electrical motor system of claim 29, further comprising a mutual stator plate system.

49. The electrical motor system of claim 48, wherein the mutual stator plate system

P21760.A04

Bl  
ent . comprises at least one first stator and at least one second stator, the at least one first stator forming part of the first motor and the at least one second stator forming part of the second motor.

50. The electrical motor system of claim 48, wherein each of the first and second rotors are rotatable with respect to the mutual stator plate system.

51. The electric motor system of claim 29, wherein the electronic power system comprises at least one of a component and an external electric circuit, which is mounted in a casing.

52. The electric motor system of claim 51, wherein the casing contains at least one of the first and second motors.

53. The electric motor system of claim 51, wherein the casing surrounds at least one of the first and second motors.

54. The electric motor system of claim 29, further comprising a casing for housing at least one of the first and second motors, wherein the casing includes one of a cooling system

P21760.A04

and a liquid cooling system.

B6  
cont.

55. The electric motor system of claim 29, wherein the electronic power system supplies to a mains connection at least one of a direct current, an alternating current, and a three-phase current.

56. The electric motor system claim 29, wherein each of the first and second motors comprise a stator, and wherein at least one of the stators includes at least two winding systems.

57. The electric motor system of claim 56, wherein the at least two winding systems are galvanically separated from one another.

58. The electric motor system of claim 56, wherein the at least two winding systems are coupled magnetically with a main flux of at least one of the first and second motors.

59. The electric motor system of claim 56, wherein the at least two winding systems are connected to separate electronic power circuits.

60. The electric motor system of claim 59, wherein the separate electronic power circuits are galvanically separated from one another.

61. The electric motor system of claim 56, wherein at least one of the at least two winding systems is connected via a rectifier bridge to at least one of a direct current supply, a battery-fed mains, and a machine's mains, whereby power can be exchanged in one direction.

62. The electric motor system of claim 56, wherein at least one of the at least two winding systems is connected via a transistor bridge to at least one of a direct current supply, a battery-fed mains, and a machine's mains, whereby power can be exchanged in both directions.

63. The electric motor system of claim 56, wherein at least one of the first and second motors functions as a generator and as a motor.

64. The electric motor system of claim 63, wherein the generator is configured to charge a connected machine's mains.

P21760.A04

By am. 65. The electric motor system of claim 56, wherein at least one of the first and second motors functions as a generator and as a starter.

66. The electric motor system of claim 65, wherein the first motor functions as the generator and as the starter, and wherein the starter is mechanically coupled to the engine.

67. The electric motor system of claim 56, each of the at least two winding systems are configured to allow a galvanically separable electric power exchange to occur between circuits connected to the winding systems.

68. The electric motor system of claim 56, wherein the at least two winding systems are controlled via electronically controlled switches.

69. The electric motor system of claim 68, wherein the electronically controlled switches are configured to take over control of electric parameters from the at least two winding systems.

70. The electric motor system of claim 69, wherein the at least two winding systems are coupled to non-controllable electronic power elements.



P21760.A04

76. The electric motor system of claim 75, wherein the freely selectable electromagnetic power exchange is adapted to occur by controlling electromagnetic parameters.

77. The electric motor system of claim 76, wherein the electromagnetic parameters comprise at least one of currents and flux linking of at least one of the at least two winding systems.

78. The electric motor system of claim 29, wherein each of the first and second electric motors are mounted in a casing.

79. The electric motor system of claim 29, wherein each of the first and second electric motors comprise one of an asynchronous motor, a synchronous motor and a reluctance motor.

80. The electric motor system of claim 29, wherein each of the first and second rotors rotate with respect to a common axis.

81. An electric motor system, comprising:

*B6  
ent.* 71. The electric motor system of claim 70, wherein the non-controllable electronic power elements comprise diodes.

72. The electric motor system of claim 56, wherein each of the at least two winding systems is galvanically independent of the other winding system and is connected with electromechanical function groups on generally different voltage levels.

73. The electric motor system of claim 56, wherein the at least two winding systems are closely magnetically coupled such that an electromagnetic power exchange occurs between the at least two winding systems independent of rotor rotation according to a transformer principle.

74. The electric motor system of claim 56, wherein the at least two winding systems are weakly magnetically coupled such that a slight electromagnetic influence results on the at least two winding systems.

75. The electric motor system of claim 56, wherein a freely selectable electromagnetic power exchange can occur between the at least two winding systems and a rotor shaft connected to one of the first and second rotors.

P21760.A04

B6  
ent.

at least a first electric motor comprising a first rotor and a first stator;  
the first rotor being mechanically coupled to an engine;  
at least a second electric motor comprising a second rotor and a second stator;  
the second rotor being mechanically coupled to a mechanical aggregate;  
the first stator being coupled to the second stator; and  
an electronic power system,

wherein the first electric motor and the second electric motor are electrically coupled  
to one another via the electronic power system in order to exchange electric power at a freely  
selectable voltage level.

82. An electric motor system, comprising:

a casing;

at least a first electric motor comprising a first rotor and a first stator system;  
the first rotor being mechanically coupled to an engine;  
at least a second electric motor comprising a second rotor and a second stator system;  
the second rotor being mechanically coupled to a mechanical aggregate;  
the first stator being coupled to the second stator;

each of the first stator system and the second stator system being coupled to the  
casing; and